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THE HOLYOKE CASE.

HOLYOKE, Massachusetts, has been compelled to purchase gas and electric plants at a cost of more than \$700,000, with the obligation to pay a perpetual rent for water power of \$18,750 annually. This is the result of a suit brought by the Holyoke Water Power Company under the Municipal Lighting Act (St. 1891, ch. 370, and St. 1893, ch. 454).

In 1896, and again in 1897, the city council of Holyoke passed an order by a two-thirds vote in favor of a municipal electric lighting plant; and this order was ratified by popular vote of the municipal election of December 14, 1897 (1897 R. 52; 1898 R. 44, 45). The Holyoke Water Power Company began their action in the Supreme Judicial Court on March 5, 1898 (H. I. 1), to force the purchase of both their gas and electric plants by the city, and the decree of this court against the city was entered November 18, 1902 (H. xx.). In return for its modest desire to own a municipal electric plant, Holyoke, after more than four years of expensive litigation, thus finds itself burdened with both gas and electric plants in large part of ancient construction and at a price that will be shown to be far beyond their real value.

The conditions under which gas and electrical supply were carried on in Holyoke and which led up to the determination of the city to operate a municipal plant were in some respects unique. Not only were the gas and electric interests in the hands of a single private corporation, the Holyoke Water Power Company, but the main business of that company related to the supply of water power from the Connecticut River. Such a condition exists in no other city of the State, and can hardly be supposed to favor rapid extensions and low prices in gas and electrical supply.

The Holyoke Water Power Company was incorporated

by a special charter in 1859 to maintain a dam across the Connecticut River at Holyoke and to operate canals there for the distribution of water power. By the act of incorporation the maximum capital stock of the company was fixed at \$600,000, but in 1889 another act raised this limit to \$1,200,000 (H. I. 60, 62). The Hadley Falls Company established a gas plant at Holyoke in 1849, and in the same year this plant was conveyed to the Holyoke Company, which continued to supply gas up to the time when the plant was turned over to the city under the court decree above noted. A further amendment to the charter of the Holyoke Company, in 1873, ratified its previous doings in the gas business, which appear to have been without legislative authority, and authorized the company to continue the general sale of gas under all the rights and restrictions of gas companies in general (H. I. 19, 60, 61). Electrical supply began in Holyoke in 1884 from a plant established by the Holyoke Electric Light and Power Company. The plant and business of this electric company was purchased in 1888 by the Water Power Company after the latter company had secured authority from the board of gas commissioners to engage in the electric business (H. I. 61, 331). The Holyoke Company paid \$30,000 for the electric plant and business, and assumed the debts of the electric company under an agreement dated June 27, 1888 (H. I. 67). On June 30, 1888, the total liabilities of the electric company amounted to \$43,273.14, including \$30,000 in capital stock (1889 R. 160). Exclusive control of gas and electrical supply in Holyoke thus passed into the hands of a private corporation that was largely interested in a partially competitive line of business; and this condition was maintained up to December, 1902, when the plants were turned over to the city.

In the year ending June 30, 1898, during which the voters of the city ratified the order passed by the council for a municipal electric plant, the city was paying \$100 to \$115 per year for each arc street lamp of 1,200 nominal candle

power. This rate was higher than those paid for similar street lamps by the great majority of the towns as well as of the cities in the State (1899 R. 182-188). For incandescent electric lamps of 16 nominal candle power the meter rate, subject to varying discounts where large amounts of energy were used, was 1.25 cents per lamp hour. On the basis of a consumption per lamp of 56 watts, representing the ordinary efficiency, the rate just named amounts to 22.2 cents per kilowatt hour. This meter rate was higher than those in all the 32 other cities of the State with four exceptions, and higher than the rates in any of the towns, with eight exceptions (1899 R. 189-208). Under these high prices the income from sales of electrical energy in Holyoke increased much less rapidly than the like income throughout the remainder of the State. During the fiscal year ending June 30, 1898, the income from sales of electrical energy at Holyoke was 28 per cent. greater than the like income during the corresponding year of 1892. For the entire State the like electric income was 62 per cent. greater in the later than in the earlier year. This failure of the electrical business in Holyoke to keep pace with that in the remainder of the State could not have been due to lack of rise in its population; for during the decade from 1890 to 1900 the population of Holyoke increased 28.3, and that of Massachusetts 28.8 per cent. In the later year the population of Holyoke numbered 45,712. The Massachusetts Municipal Lighting Act above referred to provides that no city may establish a municipal gas or electric plant until a vote to that effect "shall have passed each branch of its city council by a two-thirds vote in each of two consecutive municipal years, and thereafter have been ratified by a majority of the voters present and voting thereon at an annual municipal election." The statute further provides that, after a city has thus decided to establish either a gas or an electric plant, the city shall purchase both the gas and electric plants within its limits if these plants are owned by a single corporation and that

corporation elects to sell its plants. In order to fix the liability of the city to purchase its plants under the act, the corporation owning the plants must file a schedule of the property to be sold, also the terms of sale, with the city clerk within thirty days after the popular vote by which the order to establish a municipal plant has been ratified.

The Holyoke Water Power Company decided to sell both its gas and electric plants to the city, and therefore filed a schedule of these plants with the city clerk on January 8, following the municipal election of December 14, 1897. The price demanded by the company for its gas and electric plants was \$1,000,000; and the company further demanded that the city lease from it 16.5 mill powers of water at a yearly rental of \$1,500 per mill power, amounting to an annual payment of \$24,750 (H. I. 30). The city refused to pay the price demanded by the company for its plants, and the company filed a petition in the Supreme Judicial Court on March 5, 1898, asking that commissioners be appointed to value the gas and electric plants, and that the obligation of the city to purchase these plants be enforced (H. I. 1). The city subsequently answered this petition, and the court appointed three commissioners on May 12, 1898, pursuant to the terms of the Municipal Lighting Act, to determine what property the city should purchase and to fix its price (H. I. 5).

The large sum demanded by the Holyoke Water Power Company for its gas and electric plants created a desire on the part of the city to escape the obligation to purchase. Efforts were made on the part of the city to compromise the suit of the Water Power Company, and on May 16, 1899, the Holyoke board of aldermen authorized the lighting committee to make a contract with the Water Power Company to do the public lighting of the city for a period of fifteen years (1900 R. 45). This proposed contract, which contained various stipulations as to the rates for public and private service, was never executed, but another similar contract was authorized by a vote of the Holyoke board

of aldermen on January 3, 1900. This contract provided for public lighting in the city by the Holyoke Water Power Company during ten years, and bound the city not to establish a municipal gas or electric plant during that period. It was expressly provided in the contract that it should take effect only after ratification by a majority of the voters of Holyoke at an election held pursuant to a special act of the legislature to give the contract validity (1901 R. 56-63). This special act was subsequently approved June 21, 1900 (St. 1900, ch. 390), and a city election to ratify the contract was held at Holyoke on the 17th of July following (1901 R. 63). At this election 4,079 votes were cast, and of these 1,926 were for and 2,136 were against ratification, while 17 were blank.

The attempt at compromise having thus failed, nothing remained but to fight the case out in the courts.

In the trial before the commissioners appointed on May 12, 1898, one hundred and nine hearings were had, the first on April 5, 1899, and the last on March 8, 1902. Eight months after this last hearing the commissioners made their award, on November 15, 1902. The Holyoke Water Power Company and the city both waived objections to this award, and it was then confirmed by the court on November 18, 1902 (H. xx.). A delay in the hearings from May 12, 1898, to April 5, 1899, seems to have been due to the efforts of the city to compromise the suit as above outlined.

The points contested before the commissioners may be grouped under two main heads; namely, the property and rights to be transferred by the Water Power Company to the city, and the value of this property and rights,—that is, what the city was to pay for them. Section 12 of the Municipal Lighting Act provides:—

When any city or town shall decide as hereinbefore provided to establish a plant, and any person, firm, or corporation shall at the time of the first vote required for such decision be engaged in the business of making, generating, or distributing gas or electricity for sale for lighting purposes in such city or town, such city or town shall, if such person, firm, or corporation shall elect to sell and shall comply

with the provisions of this act, purchase of such person, firm, or corporation, before establishing a public plant, such portion of his, their, or its gas or electric plant and property suitable and used for such business in connection therewith as lies within the limits of such city or town.

It should be noted at the start that the corporation or other owner of a plant is under no obligation to sell its plant to the city, but that, if the "corporation shall elect to sell," the city must purchase. The act does not therefore provide for a taking on the part of a city by eminent domain or in any other way against the will of the owners. The Holyoke Water Power Company, by its schedule filed with the city clerk of Holyoke January 8, 1898, elected to sell its entire gas and electric plants, and also offered to lease to the city 16.5 mill powers of water for use in connection with these plants.

The city is not obliged in all cases to take the entire property offered by a company owning plants within its limits, for Section 13 of the Municipal Act provides that the commissioners shall

Adjudicate what property, real or personal, including rights and easements, shall be sold by the one and purchased by the other, in accordance with the provisions of this act, and what the price, time, and other conditions of the sale and delivery thereof shall be.

The exact position of the city as to the plants of the Water Power Company was summed up by its counsel in the argument by saying,—

We do not want any of their property,—gas works, electric light plant, or water power; and, if we have got to take any part of it, we want as little of it as possible [H. xvii. 199].

Section 12 of the Municipal Lighting Act provides that, if a city would be at a disadvantage in the use of any property which it is obliged to buy, compared with the vendor, the commissioners may release the city from the obligation to buy such property

The electric plant which the company elected to sell to the city was equipped with both water wheels and steam engines, and either the water wheels or the steam engines

alone had sufficient capacity to operate all of the electrical machinery at full load. The practice of the company had been to operate the electrical machinery with water power nearly all the time, and to use the steam engines at only those times when water was not available in sufficient quantities. It was shown by one of the company's witnesses that the maximum load on the water wheels at the electric station was 552 horse power, or about 8 mill powers, and that this maximum was noted on a day in January, a month when electric loads reach their highest figures (H. I. 348). It was also shown by a witness for the company that the average load at the electric station during the twenty-four hours of a January day was 231 horse power, or less than 4 mill powers (H. iv. 224). In the original offer of the gas and electric plants to the city (H. I. 30), and also in an amended offer made during the progress of the case (H. viii. 271), the company proposed to lease perpetually for use at the electric light plant 16 non-permanent 24-hour mill powers of water at the fixed rate of \$1,500 per mill power per annum.

A mill power was defined in the proposals of the company to be the right to draw thirty-eight cubic feet of water per second from the nearest canal of the company under a head of twenty feet, or a proportionately greater amount of water per second under less heads, representing about 65 horse power net from the wheels (H. iii. 221). In other words, the product of the number of cubic feet of water taken per second by the feet of its head shall be 760 for each mill power. The non-permanent power thus offered by the company was subject to the right of the company to discontinue it at any time when and as long as in the opinion of their engineer there was not enough water to supply both the users of permanent power and the electric station, besides certain other purposes (H. viii. 276).

The company contended that the commissioners had no power to vary the rental demanded for the water power, and that the entire 16 mill powers must be contracted for

by the city under a perpetual lease as appurtenant to the land on which the electric station stood (H. xvii. 74; H. xviii. 258). The city contended on the other hand that, as the company did not offer its lease of water power for valuation by the commissioners, as required by the statute, therefore the commissioners had no right to consider it or to make any award concerning it that would be binding on the city. As the water power plant would be of no use without the water power, the commissioners were requested on the part of the city to omit the water plant from the transfer unless the company tendered a lease of water power on terms indicated by the city (H. xvii. 303).

The amended offer of the company to the city included 41,289 square feet of land at the electric station, but this land was so restricted by the company that only 28,550 square feet could be built upon. To this amount of land the company claimed that the 16 mill powers of water were appurtenant in spite of the fact that no more than 8 mill powers were being used at the electric station. It appeared from a number of leases that were put in evidence that only 1 mill power had commonly been leased with each 12,000 square feet or more of land (H. xvi. 470-477). In contrast with these figures the company insisted that 1 mill power should be leased with each 2,500 square feet of land at the electric station, because 16 mill powers had been used there in and before 1895 when the water company furnished power to an electric railway. The lease offered by the company for 16 non-permanent mill powers provided for a rebate to the city for periods when the water could not be furnished; but, when the water was available, the lease required the entire rent to be paid, no matter how little water the city might require (H. viii. 271).

The power of commissioners to fix the price of the property which they decide that the city shall purchase is regulated by the Municipal Lighting Act, which provides that:—

The price to be paid therefor shall be its fair market value for the purposes of its use, no portion of such plant to be estimated, however,

at less than its fair market value for any other purpose Such value shall be estimated without enhancement on account of future earning capacity, or good will, or of exclusive privileges derived from rights in the public streets [St. 1893, ch 454, sect. 5]

In the valuation of the gas and electric plants the Water Power Company contended that the commission should award the aggregate cost of reproduction of the several parts of these plants in January, 1898, less depreciation. The company further contended that the valuation of its plants should be fixed by the capitalization of its net earnings at the date of the valuation (H. xvi. 56).

It was contended on the part of the city that the franchises of the company were not to pass to the city or to be valued, and that the sum represented by a capitalization of the profits of the company had nothing to do with the value of its plants (H. xvi. 56). The city further contended that, while the physical structure alone of the plants was to be valued, this valuation must apply to the plants as a whole for the purpose of their use. On the part of the city it was admitted that, in the words of the statute, "no *portion* of the plant shall be estimated at less than its fair market value for any other purpose" (H. xvi. 73), but it was contended that the purposes for which the different *portions* of a plant were valued must be consistent with each other. Just the opposite view was maintained on behalf of the Water Power Company, which insisted that the highest value of each part of their plants for any purpose whatsoever must be taken, and that the sum of these separate values would then represent the true market value of the plants (H. xvi. 69).

This theory of counsel for the company found specific application as to the land on which the gas works were situated. It was contended that the value of this land must be taken at the highest figure it would bring in the market for any purpose, and that to this value the cost of erection of the buildings on it should be added. As to this land, it was contended for the city that only the value of

the land for a gas-works site should be added to the cost of buildings to obtain the fair market value of the plant as a whole.

A fundamental distinction in the science of valuation rests at the bottom of the contentions thus made for the city and the Water Power Company respectively. To illustrate this distinction, take the case of a factory plant that has a fair market value of \$100,000 as such, and let \$50,000 of this total sum represent the market value of the land when it is to be used exclusively for factory purposes, while the remaining \$50,000 represents the cost of construction for the factory buildings. Let it be further assumed that the land where the factory plant is located has a market value of \$75,000 for retail stores if the factory buildings are removed, but that these buildings after removal are worth only \$15,000. As the market value of the land plus that of the buildings after the latter are removed will be only \$90,000, it will not pay to remove them; and the greatest real value of the entire plant is its value as a whole. According to the theory of valuation maintained for the city, the fair market value of this supposed plant is \$100,000, and no more. According to the theory of value maintained for the Water Power Company, the fair market value of this plant under the municipal lighting act is \$125,000, because the value of the land must be taken at its highest figure for any purpose, and the value of the buildings must also be taken at its highest figure for any purpose. The fallacy of this method of valuation lies in the fact that the purposes for which the land and buildings are respectively valued are inconsistent with each other. Thus, if the land is used for stores, the purpose for which its value is the highest, then the factory buildings must be removed. On the other hand, if the factory buildings are to have their highest value, they must remain where they are, and the land cannot be used for stores. The method of valuation urged by the Water Power Company leads to the absurd result that the sum

of the values of the several parts is greater than the value of the whole. A reasonable construction of the statute seems to be that the city must pay the highest value of any portion of the plant for any purpose plus the value to which the other parts of the plant are thereby brought. Thus, if a gas plant as such is worth only \$100,000, while the land on which it stands is worth \$90,000 for some other purpose and the buildings when removed are worth \$20,000, then the city should pay \$110,000 for the plant.

On the part of the city it was contended that reproductive cost less depreciation was not a fair measure of the "market value" of the plants offered because they were of faulty design, and much of the equipment was of antiquated and inefficient types (H. xvi. 142). According to the view maintained for the city, the "market value" of the plants should be based on the cost of construction for new plants of equal capacity and efficiency, less the percentage of depreciation that had taken place in the existing plants.

The date of valuation agreed on by both parties to the suit and used as a basis in the testimony of witnesses was January 1, 1898 (H. xvi. 242, 293; H. xviii. 187). It was further agreed that besides the depreciation entering into the valuation of the plants as of January, 1898, further depreciation should be allowed from that date to the day of transfer of the plants to the city. Depreciation of the plants, according to the view of the city, included not only the physical destruction of their parts by wear and decay, but also the decrease in the value of the parts because of improvements in the art (H. xvi. 333-349). On the part of the company it did not clearly appear just what matters tending to the destruction of values were thought to be properly included under the head of depreciation, but it was insisted that depreciation in the particular plants could not be computed by percentages based on general results in similar plants, but should be determined mainly by inspection and then guesses or

tests as to how far the things inspected had decayed or worn out (H. xix. 293-312).

In cases of this sort it seems better to limit the meaning of depreciation to physical destruction of all sorts, so that depreciation charges will be limited to the annual amounts necessary to keep the plant the same as it was or as good as it was when new. If reproductive cost is taken to be the cost of a plant of equal capacity and efficiency with the one in question without regard to the reproduction of specific parts, this cost cuts off all value lost by advances in the arts. It follows that the present value of any plant may be found by the deduction of the percentage of purely physical depreciation from the reproductive cost just named.

Witnesses for the company based their allowances for depreciation on the idea that, if the parts of a plant have an average life in use of twenty years, the annual charge for depreciation should be a sum which, if put at interest each year, will aggregate an amount at the end of the twenty years equal to the value of the new plant. The fallacy of this idea was exposed on the part of the city, and lies in the fact that the annual depreciation charge must be invested yearly in the plant in order to keep it as good as it was and maintain its earning capacity. The depreciation fund cannot, therefore, be put out at interest. In the case assumed of a plant with a life of twenty years as to its parts, the yearly depreciation charge should be 5 per cent. of its first cost if the price of materials remains constant.

Water power consumed more time than any other subject at the trial of this cause (H. xviii. 257-319; H. xix. 1-166; H. xvi. 161-210, 462-523). This attention to the subject of water power was warranted, for according to the demands of the company the city was to be subjected to a perpetual annual payment as to the electric plant alone of \$24,000 as rental for water power. A sum that capitalized at 4 per cent. represents an investment of \$600,-

000. This yearly rental as fixed by the company was the price to be paid for the privilege of drawing 16 mill powers—or about $65 \times 16 = 1,040$ net horse power—of water from the canal of the company during every hour of the day, except certain hours on Sunday, and every day of the year. The privilege was subject to the important limitation that the engineer of the company might shut off the supply of water whenever he thought it advisable to do so. For days when the water was shut off the city was to be allowed a rebate. According to the view maintained by the company it was not competent for the commissioners to reduce the annual rent above named, either by lowering the quantity of water that the city should be obliged to pay for or by cutting down the yearly rate of \$1,500 per mill power.

It was contended for the city that the rental charge of \$24,000 for 16 mill powers was too high, because the electric lighting plant could use not more than 8 mill powers at times of day when the load was heaviest, and less than 4 mill powers for the average load during each twenty-four hours. The rate of \$1,500 was also said to be too high, because a number of users of water power in Holyoke were shown to be paying not more than \$600 yearly per mill power twenty-four hours daily, except Sundays and holidays. There was also a large amount of evidence which tended to show that a well-designed steam plant in Holyoke would operate the electric station at a lower cost than water at \$1,500 per mill power yearly. It was shown that the electric systems in the near-by cities of Hartford and Springfield purchased energy from water-driven stations at much less than \$1,500 yearly per mill power of maximum load. Whatever the rental awarded per mill power, it was the contention of the city that the rent should only apply to water measured and used. Besides the annual rental of \$24,000, a bonus of \$72,000 was demanded for the right to draw the 16 mill powers of water that were said to be appurtenant to the land on which the electric station stood.

Earnings and franchise value were urged by the company

as necessary factors to determine the market value of their plants, in spite of the words of the statute above quoted (H. xviii. 68-191). The position of the city was, on the other hand, that earnings and franchise rights could not be considered to fix the market value of the plants (H. xvi. 57, 58, 77-119). As the commissioners in their report distinctly stated that they excluded the franchise and earnings from the valuation of the plants, it is not necessary to follow out in detail the contentions of counsel on these points.

A factor of much importance in its relation to the value of the plants, as the award has proved, was their operation, or, in other words, that the plants formed a "going concern." It was claimed by the company and admitted by the city that something should be added to the physical value of the plants as compensation for the fact that they were in condition to operate and do business. At this point, however, the agreement ceased, for the ideas as to the value to be added to the plants by reason of their "going" differed widely. The view of the company was that the "going" feature of a plant was valuable only because the plant was making a profit and was to be measured by the amount of that profit (H. xviii. 170-185). This idea, if carried out, would obviously result in the capitalization of earnings and in franchise valuation under another name. Counsel for the company admitted this fact by saying that, if a capitalization of its net earnings showed that a plant had a total value of \$700,000, and if the structural value of this same plant was \$400,000, then the fact that the plant was a going concern should add \$300,000 to its structural value. The contention for the city was that the "going" feature of a plant increased the value of the labor and materials expended on it only by the amount that would probably be required to pay interest during construction, an allowance for contingencies, engineering services and tests necessary to put the plant in good running order (H. xvi. 124-133, 350-352). In

the opinion of the city the value of a going plant is about 10 per cent. above that of the materials and labor that go to make it up.

If earnings are once admitted to show the value of the "going" or operating feature of a plant, it is hard to see how capitalization of these earnings and the consequent valuation of franchise and good will is to be avoided. As to any plant there are but two things of value,—its physical structure, on the one hand, and its business franchise and good will, on the other. It is impossible to pass beyond the material without entering the non-material portion.

The award of the commissioners, dated November 15, 1902, was in part as follows:—

We have valued the property, by the consent of the parties, as of January 1, 1898, and in so doing have adopted the following rules —

We found,—

1 The value of the several parcels of real estate used in connection with the gas and electric plants for what they are worth in the market for the purposes of the use to which they are being put and are best adapted, *i e.*, as a part of these plants

2 The reproductive cost of all parts of the buildings and machinery that could be duplicated in January, 1898, and the market value of parts that could not be reproduced in the market.

3 Less depreciation of all kinds whatever in the existing plants upon that date, arising from age, service, wear, and tear, together with all defects therein, and all other causes and factors that lessen the value of the plants as they existed upon that date, and which would not pertain in any way to the reproduced plants. . .

We further considered upon this question all evidence tending to show that upon this date there could be obtained in the market buildings, mechanisms, and materials proper to be used in the making and distribution of gas and electricity that were cheaper and more efficient and which would produce more economical results in the plants in existence, or as they could be duplicated. In so far as these facts affect and depreciate the value of any part of the existing plants in the market, we reduce by so much our valuation of the same.

It further appeared that the company, in 1898, had secured a large number of customers, with whom it had made connections and to whom it was supplying gas; that its gross earnings therefrom were about \$80,000, and the profits arising therefrom were something in excess of \$30,000, that the electric plant had also many customers,

and the company was making therefrom in 1898 a profit in excess of \$20,000 out of its gross income (which was about \$53,000). The company, therefore, will turn over to the city these plants, not only with a capacity to earn a profit, but having brought both into a prosperous and profit-paying condition. For this reason we think the value of the property has been enhanced in the market, and have allowed for the same in finding the fair market value.

While we excluded the petitioner's claim that we should value the franchise of the company employed in the gas and electric business, and have not enhanced the property on account of its earnings or earning capacity, whether in the past, present, or future, by using the same for the purpose of fixing the value of the plants by capitalization or as a basis for such valuation, yet we have considered the extent of the service done by the company in procuring customers, the prices charged by it for gas and electricity, whether it has so managed the business as to obtain (and has obtained) a profit therefrom, and the amount of that profit as evidence of how valuable, as going plants, the plants had become in the market, taken in connection with their condition, efficiency, and economy in operation, as well as any lack thereof, and all other facts relating to the plants as they were in January, 1898.

As may be seen from this quotation, the award of the commissioners is a remarkable document, even when considered by itself,—remarkable especially for the fact that it lays down two apparently antagonistic rules of valuation, and says that both of them were followed in relation to the plants under consideration. There may be minds that can understand how commissioners who “have not enhanced the property on account of its earnings or earning capacity” have considered “the amount of that profit as evidence of how valuable, as going plants, the plants had become in the market”; but to the ordinary understanding these two statements appear to be flat contradictions. The use of profits to determine how valuable “plants had become in the market” will appear to many persons, at least, to be the capitalization of net earnings and the valuation of franchises and good will, pure and simple, along with the physical structures of the plant. How can the profits be earned without the franchise to do the business? and of what use is the franchise save to earn

the profits? How can the amount of profit affect the market value of a plant save by capitalization of the profit?

In their award the commissioners named lump sums for the gas and electric plants respectively, but did not give the items of which these sums were made up, save as to the amounts allowed as bonuses for the rights to use water power at these plants. A schedule of the items of the award was given to counsel in the case by the chairman of the commission, but this schedule never became a part of the court record (H. xx. 170).

A summary of this schedule is as follows:—

Value of gas-plant buildings	\$125,807	
Value of gas-plant machinery	170,504	
5 per cent. during construction	17,583	
20 per cent. going plant	62,779	\$376,673
Value electric-plant buildings	\$123,821	
Value electric-plant machinery	93,601	
5 per cent. during construction	13,008	
20 per cent. going plant	46,084	
	<hr/>	
	\$276,514	
Bonus for water power	53,356	329,870
	<hr/>	
Total		<u>\$706,543</u>

As to water power, the award provided that, in addition to the bonus of \$2,250 in connection with the gas plant and \$53,356 in connection with the electric plant, included in the above valuations, the city should pay forever to the company an annual rent of \$18,750. This rent was made up of \$750 to be paid for one-half mill power of water at the gas plant and \$18,000 to be paid for 12 mill powers of water at the electric plant, at the rate of \$1,500 per mill power. The bonus named for water power at the electric plant included the right to begin to draw and pay for 4 additional mill powers at the electric plant at any time within ten years from the date of its transfer to the city, at the rate of \$1,500 per mill power yearly. It is safe to assume that this last-named right is one that the city will never care to assert. In the rate of \$1,500 per mill power

per annum the company got all that they demanded, but the city was obliged to pay the rental of only 12 mill powers at the electric plant instead of the rent for 16, as the company had contended that they should. This award of water power rental against the city seems to be entirely too large, because it required the city to pay for 12 mill powers of water twenty-four hours per day when the maximum load on the plant was only 8 mill powers and the average twenty-four-hour load less than 4 mill powers. The rental also seems excessive compared with the market price of non-permanent water power in Holyoke. It was shown by the water-power leases of a number of manufacturing plants in Holyoke that \$600 was the annual rate paid per mill power for non-permanent water, and in no case was it shown that a higher rate was being paid for this sort of power (H. xvi. 470-477). Every company operating an electrical supply system is required by law to make a sworn annual return of its business to the gas commissioners. In their return to these commissioners for the fiscal year of 1897, and again in 1898, the company included an item of \$4,500 for the rent or value of water power used at their electric station. As the maximum load at the electric station was a little under 8 mill powers, the rate of \$600 per mill power per year would amount to about \$4,500. The gas commissioners have jurisdiction to regulate prices of electrical supply, and it was therefore for the interest of the company to make its operating expenses as large as possible and its net earnings as small as possible, consistently with the required oath. This fact furnishes a strong presumption that the rent of \$4,500 for water power, as charged by the company against the electric plant, was all that this power was worth (H. xvi. 523).

The company originally demanded \$1,000,000 as the value of their gas and electric plants in addition to the rent of water power. During the trial the company increased this demand by several hundred thousand dollars, basing the increase on the earning power of the property.

For the city it was contended that the gas plant should be valued at not more than \$200,000, and the electric plant with its water-power equipment at not more than \$140,000, including any bonus for the water power, making a total of \$340,000 for the two plants. All companies operating gas or electric systems are required by law to make yearly reports to the gas commissioners, showing the cost and value of the physical property included in these systems. For some reason the reports of the Holyoke Company included only their electric plant, and not their gas plant. According to the report of the company for the year ending June 30, 1897, the value of its electric plant was then \$141,197. The books of the company showed a total first cost of the electric plant to January, 1898, of \$243,172.84, and from this cost various sums to the total amount of \$101,975.47 had been charged off by the company on account of depreciation or otherwise, leaving the value of the plant at \$141,197, as before stated (H. xvi. 450). As the reports to the gas commissioners are made under oath, and as it is to the interest of each company to make its assets appear as large as possible in order that its percentage of net earnings may appear small and the danger of a reduction in rates be diminished, there is good reason to believe that the figure of \$141,197 given by the company as the structural value of its electric plant was all that it was worth.

As the value of the gas plant, the commissioners awarded a sum, above named, that was 88 per cent. greater than the structural value of this plant as fixed by the expert witnesses for the city at \$200,000. As the value of the complete electric plant, the commissioners awarded a sum, already stated, that was 133 per cent. in excess of the \$141,197 that the company had named in their sworn report to the gas commission, and that was shown by their own books to be its structural value.

To reach these results, the commissioners took certain figures as the market value or cost of each part of the

plants on January 1, 1898, if new, from the value thus taken for each part an amount representing depreciation was taken when thought necessary, and to the sum of these values 25 per cent. was added. Of this added percentage 5 was said to be for something during construction, and 20 was for the "going" of the plant.

An example of the way in which these costs or values of January, 1898, were arrived at may be seen in the case of the land on which the main part of the gas plant was located. This land measured 85,054 square feet, and the company demanded for it the sum of \$42,527, or 50 cents a square foot. As vacant land, the site of the gas works without water power appurtenant thereto was valued by witnesses for the company at 40 to 50 cents per square foot, and by witnesses for the city at 20 to 25 cents per square foot. It was further shown that in three recent sales of land not far from the gas works and quite as well situated the prices were 12, 13.7, and 30 cents per square foot respectively (H. xvi. 294-296). Uncontradicted evidence given by experts for the city showed that large amounts of land, as well suited for gas works as that where the plant of the company was located, could be bought at 15 cents per square foot (H. xvi. 300, 301). The award of the commissioners as cost of the 85,054 square feet of land on which the gas plant stood was \$40,826, with, of course, no deduction for depreciation. This award of 48 cents per square foot for land used for a gas plant, when other land equally suitable for this use could be had at 15 cents per square foot, seems to be a clear case of valuation at the highest value for any purpose, when this highest value could only be obtained by the dismantling and removal of the gas plant. As the gas plant was valued as it stood and not dismantled, the plant value and the land value are plainly inconsistent with each other.

An example of the way in which depreciation charges were applied to estimates of reconstruction cost may be noted in the case of the street mains of the gas system.

These mains were ancient, having been extended by gradual additions since 1849. Most of the mains originally laid seem to have been in use in January, 1898. The superintendent of the gas plant, a witness for the company, testified that he had held that position since 1890, that he had been in the employ of the company since 1875, and that he could not recall any instance where the original pipes had been taken up (H. i. 99, 135). More than one-half the total length of street mains were laid before June 30, 1888, for on that date these mains measured 81,333 feet in length, while on June 30, 1897, the length of street mains was 150,050 feet (1889 R. 38; 1898 R. 124). According to the testimony of a prominent gas engineer employed as a witness by the company, fifty years is the total life of street mains (H. ii. 264). Accepting this figure, it follows that the annual depreciation of such mains is 2 per cent.; and this should be figured as a yearly charge to that extent, and not on a sinking-fund basis for reasons previously given. In any event the sinking-fund basis of caring for depreciation can have no proper application in a case like the present, where time has run against the plant, depreciation has done its work, and the depreciated plant is to be valued. The bad design and depreciated condition of the street mains was indicated by the fact that their proportion of small pipes was unduly large and the leakage of gas unduly high, as shown by the figures for 24 other gas systems in cities of the State. These 24 systems were first selected for comparison by a witness for the company. In these systems during the year ending June 30, 1898, the leakage of gas was 7.3 per cent., and the proportion of mains having diameters of 3 inches and under to the total length of mains was 42.9 per cent. During the same year the leakage of gas from the Holyoke system amounted to 10.9 per cent. of the production there, and the ratio of length for mains of three inches and smaller diameters to the length of all mains was 54 per cent. (H. ix., 144). Witnesses for the company placed the reproductive

cost of the street mains at figures ranging from \$65,000 to \$83,000, including laying and the repaving of streets. Witnesses for the city named costs of \$62,000 and \$68,000 for the same work (H. xvi. 381). In the face of this testimony the commissioners awarded a reproductive cost of \$84,046 for these street mains (H. xx. 172). This figure, being a higher one than any witness had dared to name, obviously is not intended to allow anything for poor design in the existing mains or for any other defects that do not come under the head of depreciation proper. This cost figure adopted by the commissioners thus left defects in the street mains of whatever nature to be compensated for under the name of depreciation. It is not entirely easy to fix on a fair total percentage of depreciation for a system of gas pipes one-half the length of which has been in the ground fifty years and the other half ten years. Any accurate computation should include the length of pipes of each size and the length of time that pipes of each size have been under ground. If the pipes were all of the same diameter, and equal lengths had been laid each year, the depreciation of the system from wear and decay at the end of fifty years would be approximately $25 \times 2 = 50$ per cent. Besides depreciation due to use and decay the city asked a reduction of \$15,000 from the reproductive cost of the street mains for their other defects. On all of these facts the commissioners made a depreciation allowance of \$8,405, leaving the net cost of the mains to the city at \$75,641. In the light of the foregoing statements this allowance hardly needs comment.

On top of reproductive costs that were in many cases at or near the highest figures named by witnesses for the company and far above the costs contended for on the part of the city, less depreciation allowances of the sort just described, the commissioners added 25 per cent. to the amount of their award. 5 per cent. of this addition was said to be for interest during construction, and the other 20 per cent. was a reward for "going" and making profits.

This allowance for going was made in connection with the land, which never went at all, just the same as in the case of the dynamos and water-wheels. Though the commissioners state that they "have not enhanced the property on account of its earnings or earning capacity," the fact remains that the city had to pay more for the plants than it would have paid under a fair valuation based confessedly on earnings, and thus including the items of franchise and good will. During each of the five years ending June 30, 1898, the net earnings of the company from both its gas and electric business were as follows, according to the sworn reports made to the gas commissioners:—

June 30, 1898	. . . . .	\$58,496 82
June 30, 1897	. . . . .	22,332 44
June 30, 1896	. . . . .	46,719 68
June 30, 1895	. . . . .	64,282.14
June 30, 1894	. . . . .	57,235 65

The fall of net earnings between 1895 and 1896 was probably due to the fact that the company lost the electric railway business in 1895, which had previously formed one-half of the maximum load at its electric station. As to the notable change in net earnings between 1896, 1897, and 1898, it may be noted that the operating expenses reported by the company during these years were as follows:—

June 30, 1896	. . . . .	\$76,572 73
June 30, 1897	. . . . .	89,026 16
June 30, 1898	. . . . .	59,877.29

In 1897 the agitation for municipal ownership in Holyoke was going on, and, if the company wished to discourage the idea, it would have been good policy to make its profits appear small. At the time of the 1898 report the company had begun action to force the purchase of its plants by the city, and in view of its strenuous contention that the plants should be valued on the basis of net earnings it was obviously desirable to make these earnings appear as large as possible. The net earnings as here stated have not been reduced by any depreciation charges as they properly

should be. The average of these net earnings for the three years after the loss of the street railway business in 1895 is about \$42,000. If 1896 is assumed to have been a normal year and the report of its net earnings a fair one, the approximate market value of both the gas and the electric plant, including business, good will, and franchises, would be approximately \$467,000 on the basis of a 10 per cent. capitalization. This 10 per cent. is probably as low a rate of capitalization as can properly be taken for these plants when sold to a single purchaser, judging by other sales of similar entire properties. Of course, a stock that pays 10 per cent. may sell at 100 per cent. above par value in small quantities, but the sale of entire properties is influenced by other considerations.

If this capitalization of net earnings is approximately correct, it appears that the \$706,543 awarded by the commissioners as the amount the city must pay for the plants was 51 per cent. greater than their value based on entire earning capacity.

But this is not all. Prior to the year ending June 30, 1897, the reports of the company to the gas commissioners as to operating expenses at the electric plant included no charge for water power. In the reports for 1897 and 1898, respectively, an expense item of \$4,500 for water power was inserted (H. ix. 163). As the city was condemned by the award to pay a perpetual rent of \$18,000 per year for water power at the electric plant, this item becomes \$18,000—\$4,500 = \$13,500 more than the amount allowed for it in the reports of operating expenses by the company to the gas commissioners. Deducting this item of \$13,500 from the \$46,700 of annual net earnings as reported leaves \$33,200, which, capitalized at 10 per cent., gives the two plants a value of \$332,000, or only 47 per cent. of what the city had to pay.

Having been generous towards the company, the commissioners could not afford to be niggardly as to their own services, and they accordingly demanded a compensation

of \$41,000, and decreed that the amount be paid in equal parts by the city and the company. In their award the commissioners say that this compensation of forty-one thousand dollars (\$41,000) was agreed upon by parties to this suit." It was said in the waiver of objection to the award on the part of the city:—

The city of Holyoke, the respondent herein, while denying the statement contained in the award of the commissioners herein dated November 15, 1902, that the amount of said commissioners' fees was agreed upon by the parties, and the further statement therein that the apportionment of the payment of said fees between the parties hereto was left by them to the commissioners, does not desire to file formal objection to said award, and hereby waives all right to file objection thereto, and consents to the issue of a decree approving and confirming the same November 18, 1902 [H. xx. unnumbered page].

During the trial of this case the company remained in possession and operation of the plants, and the award authorized the company to retain all profits for this period. It was shown from the reports of the gas commissioners for the fiscal years of 1898 to 1901 that all the electric companies of the State devoted 12 per cent. of their gross income, on an average, to repairs and current renewals annually. It also appeared that the Holyoke Company devoted only 2.4 per cent. of gross income from the electric plant to renewals and repairs in the fiscal year of 1898, 3.2 per cent. in 1899, and 2.6 per cent. in 1900. In spite of these facts the commissioners allowed nothing for depreciation between January, 1898, and December, 1902, when the plants were transferred to the city, except to make no charge for some slight additions to the plants.

In view of the great cost of the litigation, the evident intention of the company to let the plants run down while they enjoyed the profits of their operation, and of the improbability that the award made by the commissioners would be greatly modified by the court, the decision of the city to pay the award and get possession of the plants without further delay seems to have been a wise one. It was strenuously contended for the company that it was obliged

to sell its plants to the city because municipal competition would be ruinous (H. xviii. 29, 30, 82, 103, 157, 180, and 181). The good faith of this contention was made plain by the subsequent application of the company, in 1903, to the legislature for authority to erect and operate a system of electric power supply in Holyoke (House No. 705).

The foregoing award adds one more to the numerous cases* where cities and towns have been forced to purchase gas and electric plants from private corporations at excessive valuations, under the Municipal Lighting Act. Holyoke, by the publication of a complete report of this case in twenty volumes, has left a record that should indicate to other cities and towns of the State what they may expect under existing laws. Those who think that cities and towns are incompetent to operate gas or electric plants will no doubt be able to point with pride to heavy interest charges and excessive costs of operation at Holyoke in future years.

In this paper the letter H. is used to refer to the report of the case published by the city of Holyoke, and R. is used to indicate the annual reports of the gas and electric light commissioners.

Many references are made to volume sixteen (xvi.) of the Holyoke report of the case, because this volume contains the exhaustive brief of counsel for the city in which references are collected for the entire mass of evidence.

ALTON D. ADAMS.

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